in brightness to an eleventh-magnitude star. I have suspected the presence of a tail in position-angle about 300°.

JAMES D. MADDRILL.

CHANGES IN THE PERSONNEL OF THE D. O. MILLS EXPEDITION TO THE SOUTHERN HEMISPHERE.

Dr. H. K. PALMER, Assistant in the D. O. Mills Observatory on Cerro San Cristobal, Santiago, Chile, returned to California in November. He left Santiago in September, after a residence of two years and six months there, and on the return journey made an extensive trip through the interior of northern Chile and the highlands of Peru, including a visit to the Harvard College Observatory at Arequipa. Dr. PALMER is at present engaged at Mt. Hamilton in measuring the spectrograms secured by the expedition.

Acting Astronomer HEBER D. CURTIS, accompanied by his family, sailed from San Francisco on December 30th, via Panama, to Chile, to take charge of the D. O. Mills Observatory for a period of five years. Their absence from Mt. Hamilton is a severe loss to the personal side of life here.

Mr. MILLS has very generously provided also for extensive improvements in and additions to the equipment. The dome, formerly covered with heavy painted canvas, will be recovered with thick tin or with iron. A ball thrust bearing and two roller side bearings will be provided for the declination axis of the telescope. Apparatus for quick resilvering of the 37-inch mirror will be constructed. Telephone connection between the observatory on the summit and the astronomer's residence in the city will be made. A building will be constructed on the summit to accommodate a machine-shop equipped with lathe and small tools driven by electricity, and to contain rooms for the observers. Two-prism and one-prism spectrographs are under construction, in order that radial-velocity determinations may be carried to fainter stars. Professor WRIGHT, in charge of the expedition in the past, has shown that certain rapid changes in focal length and other sources of disturbance in the stellar images are due to rapid changes of temperature in the mirror during the first hours of the night. The question of artificially maintaining the temperature of large mirrors during the daytime at the reading estimated for the atmos-

phere for the evening that follows has often been discussed in past years by the members of our staff and by others. During my absence in Europe last summer and fall Dr. CURTIS worked out the details for such a refrigerating scheme, and it will be tried on San Cristobal. Various other minor improvements will be made at once. Dr. CURTIS expects to reach Santiago about February 15th.

Immediately following Dr. CURTIS's arrival, Acting Astronomer W. H. WRIGHT and Mrs. WRIGHT will return to Mt. Hamilton. Professor WRIGHT's original appointment for duty in Chile terminated in October, two years after the observatory was ready for work. Dr. CURTIS's duties in connection with the eclipse expedition to Labrador, however, prevented him from leaving earlier for the south, and Mr. WRIGHT has remained there awaiting his arrival.

An assistant in the D. O. Mills Observatory will soon be appointed in succession to Dr. PALMER.

W. W. CAMPBELL.

NOTES FROM THE BERKELEY ASTRONOMICAL DEPARTMENT.

Professor LEUSCHNER was present at the recent meeting of the Astronomical and Astrophysical Society of America, held in New York City. He presented the following papers by members of the Berkeley Astronomical Department:—

"An Analytical Method of Determining the Orbits of Satellites." A. O. LEUSCHNER.

"On the Orbit of the Seventh Satellite of *Jupiter*." R. T. CRAWFORD, A. J. CHAMPREUX.

"A Contribution on Astronomical Refraction." R. T. CRAWFORD.

"Tables for the Reduction of Photographic Measures."

"Investigation of the Repsold Measuring Apparatus of the Student's Observatory." B. L. NEWKIRK.

Mr. STURLA EINARSON has been appointed Assistant in Practical Astronomy in the Berkeley Astronomical Department. Mr. EINARSON took the A. B. degree at the University of Minnesota last year, and will continue his study at the University of California.

CORRIGENDUM.

In No. 105 of these *Publications*, page 195, line 3, for $-38'\ 25''$, read $+2'\ 12''$. R. T. C.